

ABSTRACT OF THE DISCLOSURE

A gate insulating film (13) and a gate electrode (14) of non-single crystalline silicon for forming an nMOS transistor are provided on a silicon substrate (10). Using
5 the gate electrode (14) as a mask, n-type dopants having a relatively large mass number (70 or more) such as As ions or Sb ions are implanted, to form a source/drain region of the nMOS transistor, whereby the gate electrode (14) is amorphized. Subsequently, a silicon oxide film (40) is provided to cover the gate electrode (14), at a temperature which is less than the one at which recrystallization of the gate electrode (14) occurs.
10 Thereafter, thermal processing is performed at a temperature of about 1000 °C, whereby high compressive residual stress is exerted on the gate electrode (14), and high tensile stress is applied to a channel region under the gate electrode (14). As a result, carrier mobility of the nMOS transistor is enhanced.